

ERGIS

Canadian System Working Group



April 17, 2013

Approaches to Modeling The Canadian System



Options

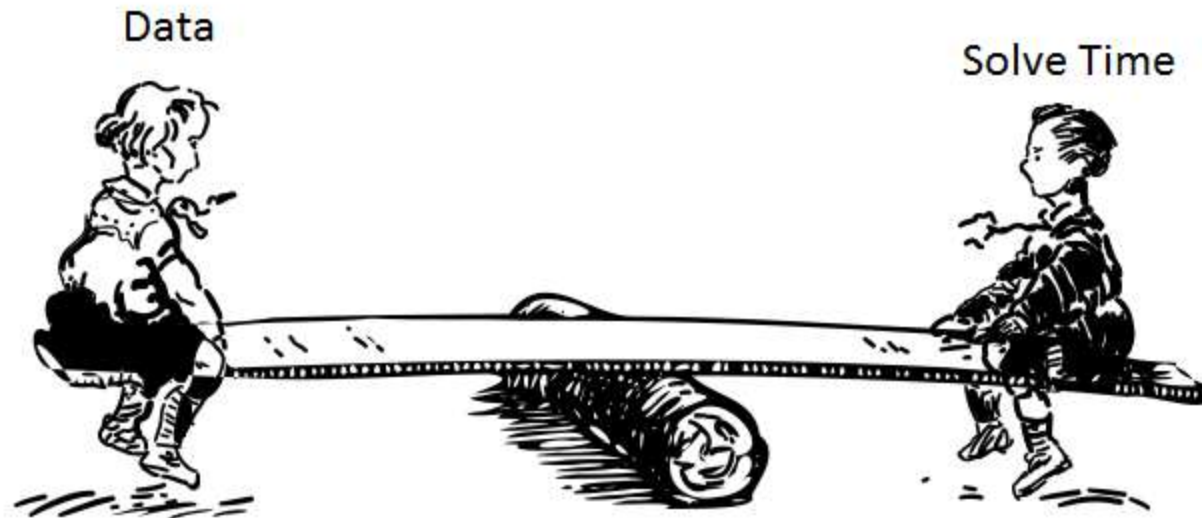
- **Net Interchange**

- What are reasonable input assumptions?
 - Previous studies
 - Transfer capability?
- Proxy generator and supply curve?

- **Model the Canadian System**

- Size compared to the US-EI
- Generation
- Load
- Reserves

Balancing Act



Perspective

- **Canadian system is ~10% of total EI, by several metrics**
 - 1,000 generating units (out of 9,000)
 - 93,000 MW capacity (out of 950,000 MW)
 - 300 TWh annual demand (out of 3,000 TWh)

Option 1: Model Net Interchange



Modeling Net Interchange

- **Other Studies**

- EWITS
- NYISO Wind Integration Study
- New England Wind Integration Study
- New York/New England Economic Study
- EIPC
- Canadian Studies?
- MISO?

- **Implementation**

- Proxy generator
- Block schedules

What is the state of the art?

- **Proxy Generator**
 - What was the supply curve?
- **Block Schedules**
 - Price and Quantity?
- **Time resolution**
 - Monthly?
 - Hourly?
 - 5 minute?

Option 2:

Model the Canadian System



Model of Canadian System

- **Model Canadian Regions in same manner as US Regions**
 - Generation
 - Load
 - Reserves
 - Transmission

Canadian Data Needs

- **Thermal properties**
- **Hydro limits**
- **Expansion capacity**
- **Load**
- **Reserves**
- **Wind and Solar data**

Discussion



Discussion

- **Interchange**
 - Only a few proxy generators or schedules
 - Historical Interchange
 - How will these change by 2020?
- **Modeling Canada**
 - Increases problem size by $\sim 10\%$
 - Canadian Generator Characteristics
 - Should we use the same assumptions as the US?
- **How will this decision drive results?**

Next Steps

- **Which option should we pursue?**
 - Interchange
 - Model Canadian Regions
- **Next meeting**
 - Report on data availability
 - May

Disclaimer

- **This document is for discussion and development purposes only. Any data or statements contained in this document are subject to revision without notice. Do not cite or quote. Contact aaron.bloom@nrel.gov with any questions.**